

CLAIMS

1. An inspection device for inspecting an object passing on a conveyance path, comprising:

an illumination portion for illuminating the object with light in a plurality of wavelength bands;

at least one light-receiving and detecting element for receiving light generated from the object; and

a discrimination processing portion for discriminating the object by combining data of a plurality of detection signals obtained by the light-receiving and detecting element which receives the light generated from the object substantially within an identical period of time when the illuminating portion illuminates the object with the light in the plurality of wavelength bands; and by comparing and collating combined data with preset reference data.

2. The inspection device according to Claim 1,

wherein the discrimination processing portion obtains, as the combined data, a ratio of a plurality of detected values obtained by the light-receiving and detecting element which receives the light generated from the object substantially within an identical period of time when the illuminating portion illuminates the object with the light in the plurality of wavelength bands.

3. The inspection device according to Claim 1 or 2,

wherein the illumination portion includes a plurality of light sources for emitting light beams in different wavelength bands, and a lighting control portion for performing control to light each of the light sources while individually switching the light sources.

4. The inspection device according to Claim 1 or 2,
wherein the illumination portion includes a plurality of light
sources for emitting respective light beams in different wavelength
bands, and

5 wherein a plurality of light-receiving and detecting elements are
separately provided to receive light generated from the object in
correspondence to the respective light sources when the object is
illuminated with the light beams from the respective light sources.

10 5. The inspection device according to Claim 4, further comprising
optical filters each of which is disposed between the conveyance path
and each light-receiving and detecting element, and each of which is
configured to transmit only a certain light component among light
components with a plurality of features generated from the object when
the object is illuminated with the light from each light source.

15 6. The inspection device according to any one of Claims 3 to 5,
wherein the plurality of light sources include a first light source
for emitting ultraviolet light, and a second light source for emitting
infrared light.

20 7. The inspection device according to Claim 6,
wherein an ultraviolet removing filter is disposed between the
conveyance path and the light-receiving and detecting element and is
configured to remove the ultraviolet light emitted from the first light
source.

25 8. The inspection device according to Claim 6 or 7,
wherein an ultraviolet-infrared transmitting filter is disposed
between the conveyance path, the first light source and the second light

source, and is configured to remove a visible light component in the ultraviolet light emitted from the first light source and to transmit the infrared light emitted from the second light source.

9. The inspection device according to any one of Claims 3 to 5,
5 wherein the plurality of light sources include a first light source for emitting ultraviolet light, a second light source for emitting infrared light, and a third light source for emitting green light.